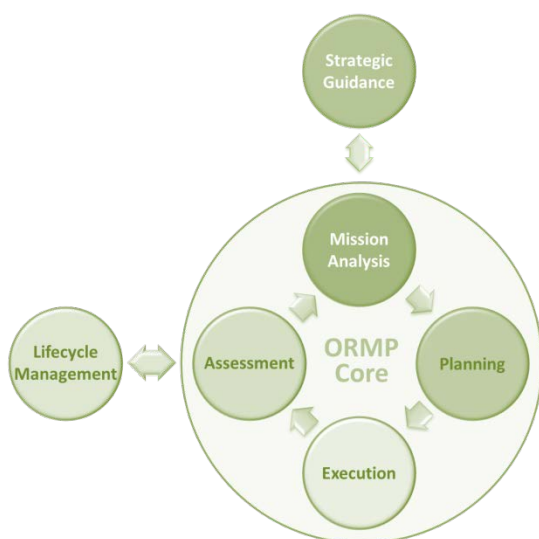# U.S. Customs and Border Protection

USBP
REQUIREMENTS MANAGEMENT PROCESS (RMP) DESCRIPTION

Version 1.0

May 2016

Headquarters, USBP

Strategic Planning and Analysis Directorate

Operational Requirements Management Division

U.S. Customs and Border Protection (CBP)

USBP RMP Description

Reviews and Approvals

Prepared by:

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Associate Chief, Operational Requirements Management   Date
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 Directorate Chief, Strategic Planning and Analysis   Date
Directorate

Executive Summary

The United States Border Patrol (USBP) Operational Requirements Management Division (ORMD) has developed the *Requirements Management Process* (RMP) as a consistent and repeatable, bottoms-up approach to collect, manage, disseminate and action initial capability and operational requirements. Capability gaps are captured directly from the field using the USBP-developed Capability Gap Analysis Process (CGAP) and are justified with qualitative and quantitative analysis to support operational and acquisition decisions. The output of this process is a set of capability gaps, courses of action, initial capability requirements and measures/success criteria.

The RMP is comprised of six steps, of which four constitute its core activities. The figure below depicts the continuous process. USBP's role and tasks for each of the six steps in the process are identified along with the outputs required to allow successful transition to the next step in the process.
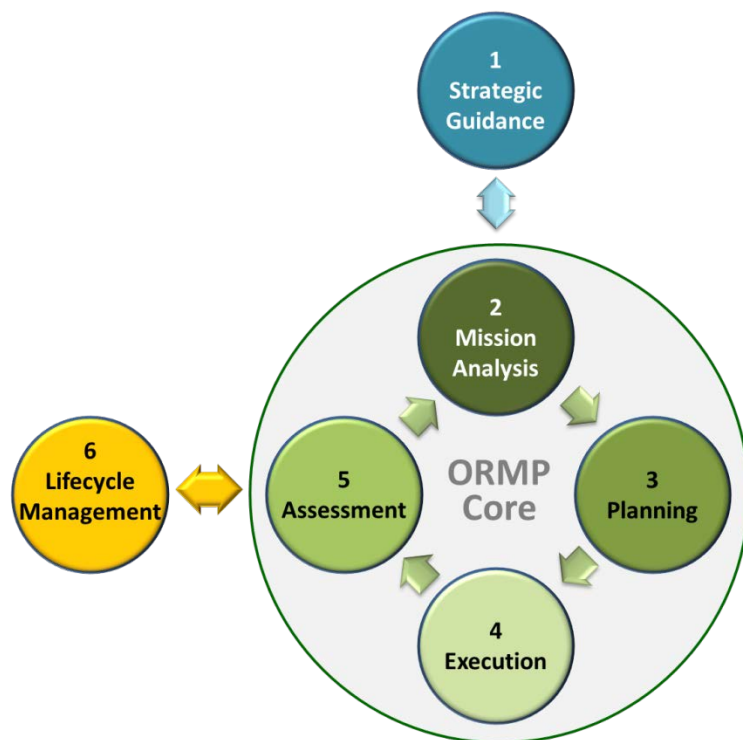
This document is a brief overview of how USBP identifies, manages, and actions its capability requirements. The intended audience is USBP planners and requirements managers. This document will also be used to describe requirements management and capability based management activities to entities outside the USBP.

Lessons will be learned as this process develops, because of this, this process will be open for updates, initially once every year. This current version represents the prototype requirements

management process for the USBP, scoped primarily towards technology and tactical infrastructure, ORMD's legacy mission space. The 2017 version of this document is intended to be USBP wide. Ultimately supporting all future DHS 102 Acquisition documentation, procurement documentation, as well as research and development planning.

Table of Content

1. INTRODUCTION

1.1 Purpose

The United States Border Patrol (USBP) Operational Requirements Management Division (ORMD) has developed the *Requirements Management Process* (RMP) as a consistent, bottoms-up approach to collect, manage, disseminate and action initial capability requirements. The process enables USBP to capture capability gaps directly from the field and justify them with qualitative and quantitative analysis to support operational and acquisition decisions. Accordingly, investment decisions are based on sound data and methodologies that assess national threats, vulnerabilities, and consequences. Gaps, once defined and documented, are prioritized based on DHS, CBP and USBP guidance, ensuring critical vulnerabilities are identified and actioned, as well as adherence to strategic direction.

These capability requirements feed the operational requirements developed for input into the DHS 102 Acquisition process. Moreover, the outputs are consistent with, and support, the Needs phase of the Department of Homeland Security (DHS) Acquisition Review Process (ARP)[1], the Solution Engineering, Planning, Requirements Definition, and Design stages of the DHS Systems Engineering Lifecycle (SELC)[2], and the DHS Joint Requirements Integration and Management System (JRIMS)[3].

1.2 Scope

The *RMP Description* includes the phases and activities of the process, as well as the ORMD responsibilities in each.

1.3 Intended Audience

This document is a short, easily readable description of how USBP identifies, manages, and actions its capability requirements. The intended audience is USBP planners and requirements managers. This document will also be used to describe requirements management and capability based management activities to entities outside the USBP.

1.4 Process Overview

The RMP is comprised of six steps, of which four constitute its core activities. Figure 1 depicts the continuous process.

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[1] DHS Instruction Manual, 102-01-001, Acquisition Management Instruction/Guidebook, 01 October 2011
[2] Systems Engineering Lifecycle Guide (v2.0), Appendix B of the DHS Acquisition Instruction/Guidebook 102-01-001, 01 October 2011
[3] Directive 107-01 Joint Requirements Integration and Management System (DRAFT), Directive 071-02 The Joint Requirements Council DRAFT 11-09-2015, and Instruction 107-01-001-01 Operation of the JRIMS FINAL 11-09-2015
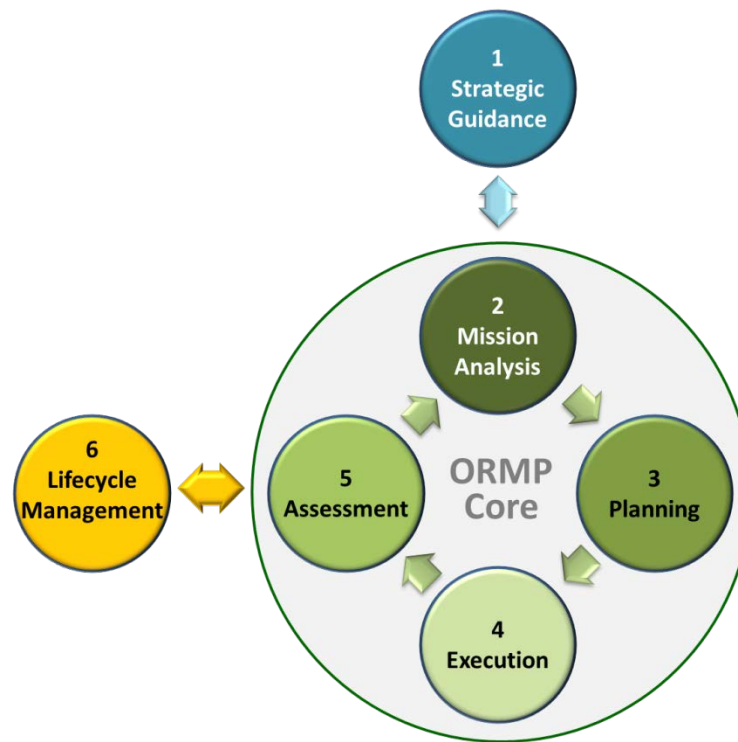
Figure 1: RMP

Although one could argue that *Strategic Guidance* is technically outside of the RMP, the process of identifying capability requirements could not begin without it. This initial step, Step 1 *Strategic Guidance*, begins with the <u>receipt</u> of the overall DHS, CBP and USBP strategic vision, goals, missions, and objectives, as well as the state of the threat. USBP must interpret this strategic guidance within the context of the three border areas (Northern, Southwestern, and Coastal) and their individual corridors and sectors. The Strategic Guidance may not change significantly from year to year; but it shapes how USBP will achieve its mission.

Once guidance is received, the core of the RMP commences. The initial core step, Step 2, is *Mission Analysis* and it is conducted primarily at the Sector/Station level. Building on intelligence information and strategic guidance, mission analysis provides the following:

- Required set of capabilities needed to perform mission essential tasks (MET);
- Baseline description of current Station capabilities; and
- Current deficiencies between the two (i.e., capability gaps[4]).

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[4] Capability gaps are defined as the difference between current Station capabilities and those capabilities needed to perform mission-critical objectives.

The primary tool used to conduct mission analysis is the Capability Gap Analysis Process (CGAP).

Step 3 of the RMP is *Planning*. During this step, capability gaps within each Area of Responsibility (AOR) are examined in detail. This is done to enable the identification of Courses of Action (COA) that can be implemented by procurement, non-materiel and or acquisition. In addition, USBP prioritizes capability requirements across the three borders based on current threats and risks.

Step 4 of the RMP is *Execution* and the purpose is to pursue selected COAs and action operational requirements. Although initial COA's of actions have been developed in the IRDs, the Execution step requires the USBP to engage with capability developers to develop both mid- to long-term Courses of Actions and identify new and refine current capability requirements for action. At this stage, USBP also participates in the review of alternative solutions to address requirements.

Once solutions are developed and ready for deployment, USBP transitions to Step 5 of the RMP, *Assessment*. This step includes monitoring implementation and fielding of solutions (i.e., acquisition management - reliability of its cost estimates and schedules), and the test and evaluation of those solutions in the field. A final assessment will to determine if the pertinent requirements are satisfied to include the post-fielding, long-term sustainment and/or replacement requirements and costs are.

The final step of the RMP, Step 6, is *Lifecycle Management*. This is an ongoing assessment of how the solutions are performing over time including long-term sustainment. Necessary actions to update and manage the requirements are also identified and fed back into the core RMP.

1.5   The Bigger Picture

The RMP is part of a larger, superordinate set of processes and structures. In fact, without a "Process Roadmap," it can be very difficult to understand how processes fit together. This section lays out such a roadmap.

USBP makes an assessment of what it needs (capability requirements) versus what it has (capability baseline) to identify gaps in capability. For those capabilities not readily available off-the-shelf, the capability will be developed within the DHS capability development process (DHS 102 and DHS 107). The identified gaps and capability requirements are collected and submitted by USBP for entrance into the DHS capability development process. The RMP must provide products that can follow this lengthy path to receive funding and action—ultimately leading to capabilities delivered. Figure 2 below lays out the Planning, Programming, Budgeting, and Accountability (PPBA) calendar leading up to Department of Homeland Security (DHS) Resource Allocation Plan (RAP) submittal.
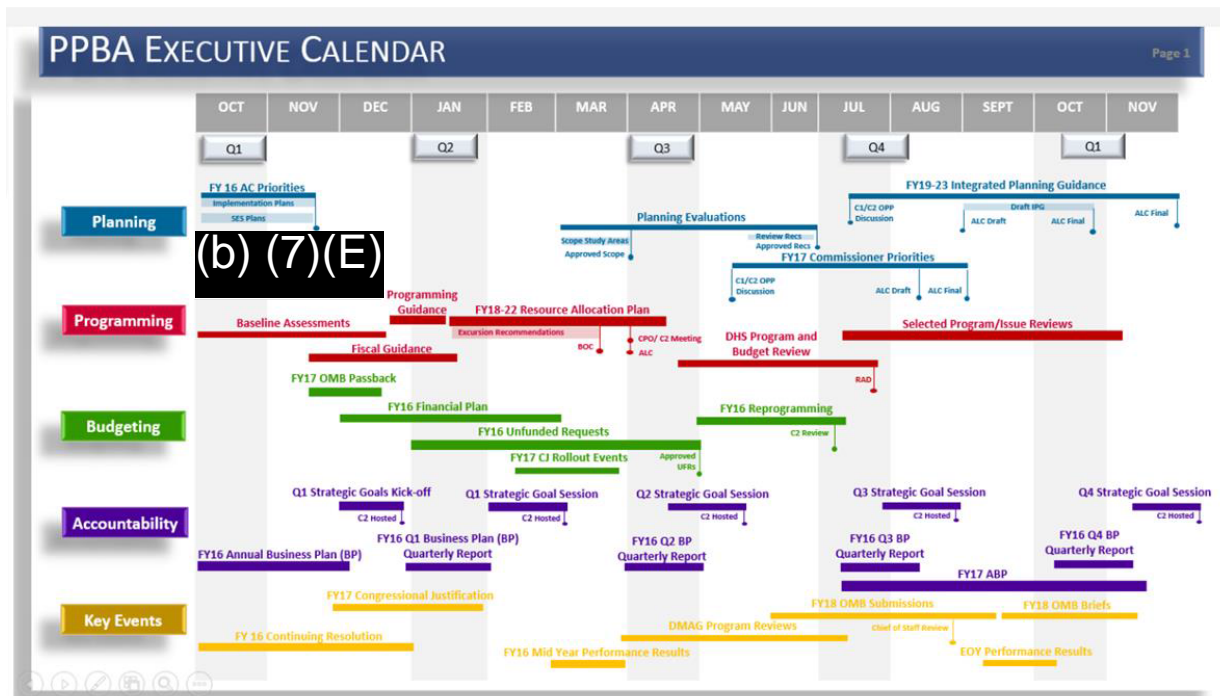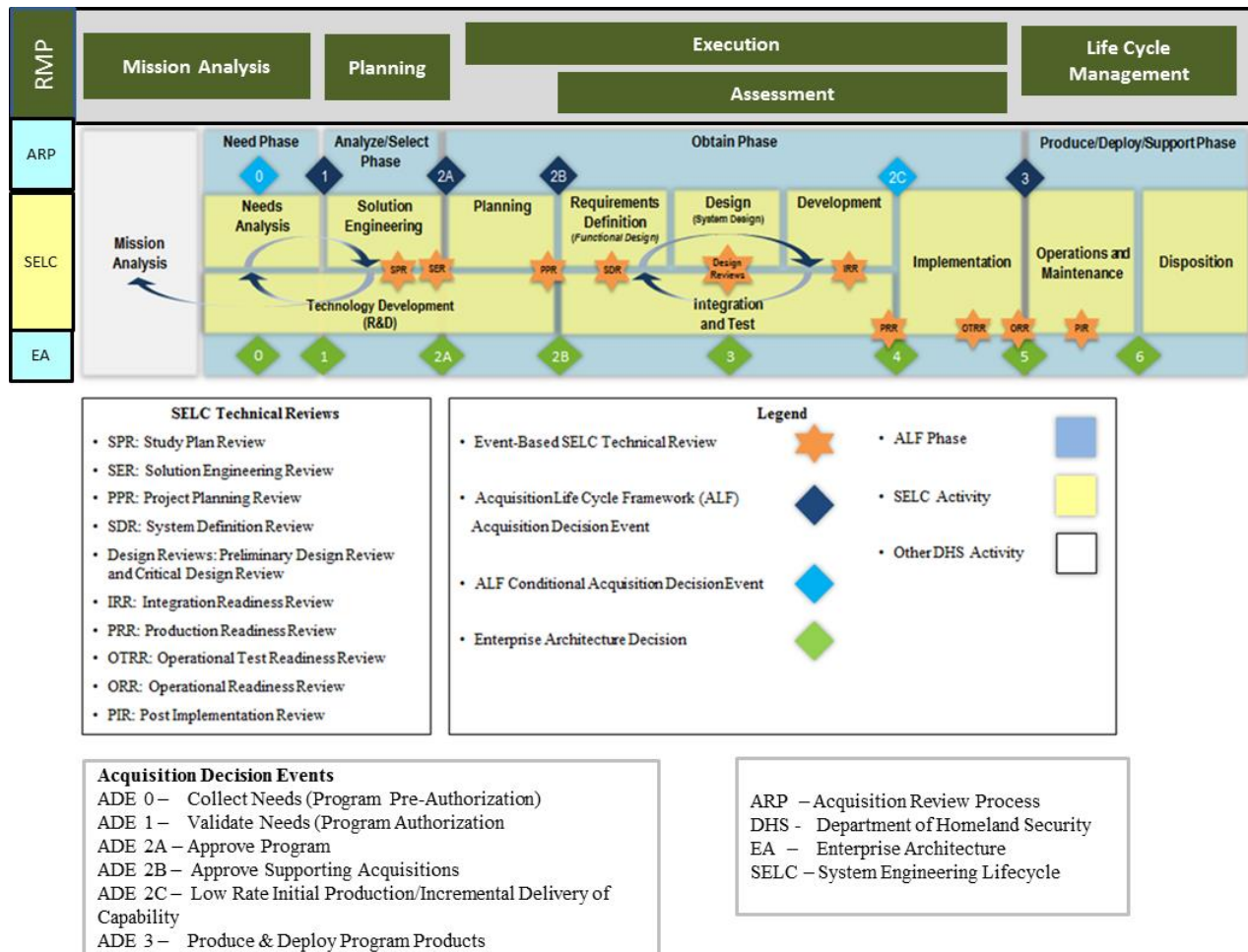
Figure 2: PPBA Executive Calendar

Eventually, these capability requirements are provided to five related processes:

- DHS Science and Technology Integrated Process Teams—Border Security IPT
- DHS S&T Technology Development and Demonstration Process (TDDP)
- DHS Instruction 102-01, Acquisition Management Directive (DHS-102)
- DHS 107-01, Joint Requirements Integration and Management System (JRIMS)
- USBP and CBP Planning, Programming, Budgeting, and Accountability (PPBA)

Furthermore, each organization depicted has a group, council, or board that is responsible for reviewing, consolidating, prioritizing, and recommending requirements to the next higher echelon. These groups, councils, and boards are currently being stood up and how they will interact with each other is still being defined. For USBP, the Requirements Working Group (RWG) provides requirements analysis and recommendations, and the, yet to be institutionalized, Executive Governance Board (EGB) approves final Border Patrol requirements. DHS(S&T) has an S&T Requirements Council (SRC) that prioritizes and approves requirements for S&T projects. Customs and Border Protection's (CBP) Office of Technology Innovation and Acquisition (OTIA) approves requirements for acquisition programs. Lastly, DHS Joint Requirements Council (JRC) approves joint capability requirements for inclusion into the PPBA process for funding.

Close interaction between several different groups and boards is necessary to deliver systems successfully to the field. Figure 3 shows how the RMP aligns with DHS Acquisition Review

Process (ARP), OTIA's Systems Engineering Life Cycle (SELC) reviews and processes, and the Enterprise Architecture Board (EAB).

SELC Technical Reviews
- SPR: Study Plan Review
- SER: Solution Engineering Review
- PPR: Project Planning Review
- SDR: System Definition Review
- Design Reviews: Preliminary Design Review and Critical Design Review
- IRR: Integration Readiness Review
- PRR: Production Readiness Review
- OTRR: Operational Test Readiness Review
- ORR: Operational Readiness Review
- PIR: Post Implementation Review

Legend
- Event-Based SELC Technical Review
- Acquisition Life Cycle Framework (ALF) Acquisition Decision Event
- ALF Conditional Acquisition Decision Event
- Enterprise Architecture Decision
- ALF Phase
- SELC Activity
- Other DHS Activity

Acquisition Decision Events
ADE 0 – Collect Needs (Program Pre-Authorization)
ADE 1 – Validate Needs (Program Authorization
ADE 2A – Approve Program
ADE 2B – Approve Supporting Acquisitions
ADE 2C – Low Rate Initial Production/Incremental Delivery of Capability
ADE 3 – Produce & Deploy Program Products

ARP – Acquisition Review Process
DHS - Department of Homeland Security
EA – Enterprise Architecture
SELC – System Engineering Lifecycle

Figure 3: Interrelationship between RMP, DHS ARP, EAB, and DHS SELC[5]

The RMP is an evolving process. Steps 1 through 3 of the RMP are more mature than the later steps of the process. This reflected in the level of detail provided for Step 4 through 6 in this document. It is expected that this document will be updated as the later steps of the process become more fully developed. A timeline is shown in Figure 4 with the notable products of the process leading up to this document.

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[5] DHS Guidebook, 102-01-003-01, Systems Engineering Life Cycle Guidebook, DHS, Office of Program Accountability and Risk Management, DRAFT
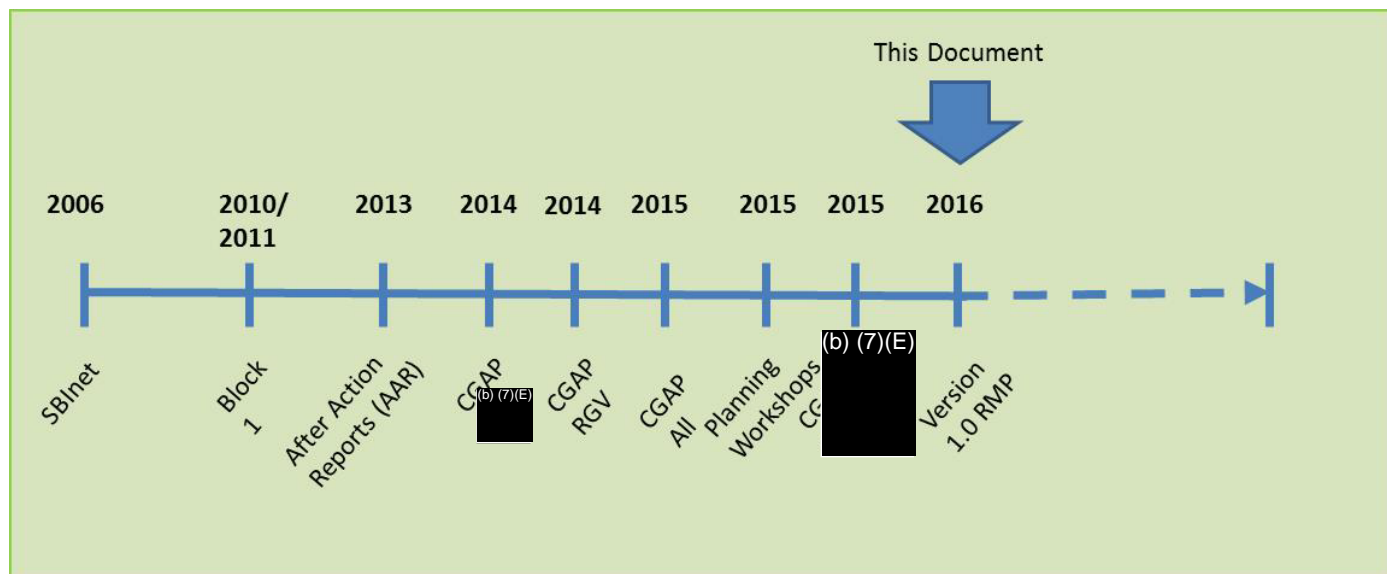
Figure 4: Evolution of the RMP

2. PROCESS DESCRIPTION

2.1   End-State Description

The end state of the RMP is mission success: deploying an effective capability, at a reasonable cost, in time, to a location it is needed and then, monitoring that asset to ensure it performs up to requirements throughout its lifecycle.

The capability requirements identify what is needed to achieve mission success. Gaps from the capability gap analysis indicate where current resources fall short in achieving the required capabilities. Resources make up candidate solutions to address the shortfalls and ensure mission success.

During the CGAP process, agents are encouraged to recommend potential solutions for mitigating the gaps uncovered during the gap analysis.   Potential solutions may be material, non-material, or infrastructure in a nature.   Resource categories to be considered for solutions include (b) (7)(E) RAGS (Regulations, Authorities, Grants, and Standards), Interoperability/Partnerships, and Infrastructure (e.g. tactical infrastructure, access roads). The candidate solutions are recorded on the CORE[6] cards in the appropriate resource category by the agents doing the assessment.

There is a timeline associated with the solution: Tier 1 (b) (7)(E) -- solutions that can be addressed by USBP), Tier 2 (b) (7)(E) -- solutions that require coordination and planning), and Tier 3 (b) (7)(E) -- solutions that require significant lead time). This is a critical component of the RMP. Instead of just focusing on one phase, say Acquisition, the RMP requires requirements managers to engage all three tiers to ensure mission success. It also increases the complexity and communications required.

There are four categories of resources that are the focus for the majority of the solution sets: People (Personnel), Technology (Material), Information (Interoperability/Partnerships), and Infrastructure. Figure 3 depicts the four primary components that ensure mission success.

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[6] Capabilities, Objective Measures, Resources, Evaluative Methods (CORE) from *Requirements Planning Team Training Guide: Strategic Requirements Planning Process & How to Draft a CORE Document*, Department of Homeland Security, March 2009

Figure 5: Mission Success Components

- <u>People</u>. People protect the US borders. The other three components are supporting mechanisms, or enablers, to Border Patrol agents. In the end, these agents deter, apprehend, and seize violators and their contraband.

- <u>Technology</u>. Systems assist agents in performing their essential tasks and act as force multipliers across the borders.

- <u>Information</u>. The collection, management, integration, and dissemination of information provide agents with an awareness of their environment, and enable informed decisions that lead to apprehensions and seizures.

- <u>Infrastructure</u>. Tactical infrastructure and access roads provide numerous benefits to agents: deterrence, funneling, access, and mobility.

Although version 1 of the RMP is focused on technology (primarily (b) (7)(E)) and tactical infrastructure, the process must enable the development of capabilities in all of these areas.

2.2 RMP Products

The RMP defines and creates these primary products: Capability gaps, Courses of Action (COAs), capability requirements, and development/deployment lifecycle products (which include the monitoring of the development of the solution, and the impact of the solution once implemented).

Capability Gaps

Capability gaps are current deficiencies between the required set of capabilities needed to perform mission essential tasks and the baseline of current Station capabilities.   The identified shortfalls in required capability are the capability gaps.

Courses of Action

Courses of Action are recommended actions that may resolve capability gaps using a (b) (7)(E) solution. In many cases, COAs can be implemented totally within USBP. COAs are divided into three tiers representing potential solution timeframes.

- Tier 1 is considered "Urgent and Compelling" and is generally defined as actions that can be taken within (b) (7)(E) to fill high priority gaps. Due to the (b) (7)(E) timeframe, Tier 1 COAs will typically not go through the PPBA process. Current or next fiscal year funds (usually operations funds) are used to realize Tire 1 COA needs.

- Tier 2 is considered Long -Term and is defined as actions that may take up to (b) (7)(E) to implement. Due to this longer timeframe, specific COAs can be, and usually are, proposed for budgetary funding in the Resource Allocation Plan (RAP).

- Tier 3 is considered Longer-Term and is defined as actions that will require significant changes to overall USBP culture, training, technology base, or infrastructure. It may take more than (b) (7)(E) to see actual implementation of Tier 3 COAs. These COAs may require prerequisite activities (such as technology development for example) before USBP would submit a RAP proposal. Technologies must mature to a Technology Readiness Level (TRL) of 7 or higher to be submitted to the RAP.

Border Patrol Capability Requirements Versus OTIA Operational Requirements

USBP develops capability requirements. Any of the four component areas (people, technology, information, or infrastructure) may be expressed as a capability requirement. Technology acquisition not easily linked to existing solution solutions typically needs a formal S&T and/or acquisition program to develop a capability. This technology acquisition is initiated by the development of operational requirements in accordance with DHS 102-01 by OTIA. USBP may provide input to the operational requirements in the form of success criteria/measures.

A formal Analysis of Alternatives (AoA) or Alternatives Analysis (AA) will be conducted under the purview of the acquisition authority (OTIA) to determine the most cost effective solution. USBP provides feedback on the AoA or AA with regard to how well the "best" solution from the AoA/AA meets Border Patrol's needs and concepts of operation.

Development and Deployment Lifecycle Products

ORMD monitors the development of the technology solution to ensure it meets USBP needs and expectations. Once the solution is deployed, ORMD should continue to monitor the system to

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[7] (b) (7)(E)

throughout its lifecycle to assess performance with respect to the operational requirements and to ensure that USBP needs continue to be met.

2.3 RMP Description

The six steps of the RMP were introduced in Section 1. Each step produces outcomes and deliverables that are used both within the process itself, and by organizations outside of USBP. Figure 6 depicts the six steps (including the four core steps) and lists USBP primary activities and outputs for each.

1 Strategic Guidance	Core Steps of the RMP				6 Lifecycle Management
	2 Mission Analysis	3 Planning	4 Execution	5 Assessment	
	People, Technology, Information & Infrastructure				
Primary Activities • Sector Threat Assessment • Sector Operational Planning • Determine strategic priorities	Primary Activities • Capability Gaps Analysis Process (CGAP)	Primary Activities • Courses of Action Planning Workshop • Capability Requirements Analysis	Primary Activities • Initial Cost, Schedule, & Performance (CSP) Assessments of Tier 1 COAs • Review DHS Resource Allocation Plan (RAP) Submissions • Review Acquisition's DOTMLPF Analysis and Analysis of Alternatives (AoA)/Alternatives Analysis (AA) • Review Operational Requirements and Assessments	Primary Activities • Monitor Operational Testing & Evaluation • Monitor implementation and fielding of Solutions	Primary Activities • Monitor and Assess Performance Over Time
Primary Outputs	Primary Outputs	Primary Outputs	Primary Outputs	Primary Outputs	Primary Outputs

Figure 6: RMP USBP Activities and Outputs

Sections 2.3.1 through 2.3.6 below address steps one through six of the RMP. In each section, the purpose, inputs, outputs and activities are defined for that step of the process.

2.3.1   Step 1: Strategic Guidance

Purpose: Provide an overall assessment of current and future threats and the broad operational plans to counter those threats for each Sector based on Strategic Guidance. Support the prioritization steps to come with the best possible, forward looking view of threat activities and potential investment decisions.

Inputs:
- Strategic Plan
- Threats and objectives for the Sector
- DHS, CBP and USBP Priorities, Strategies and Guidance
- USBP State of the Border and Risk Based Methodology
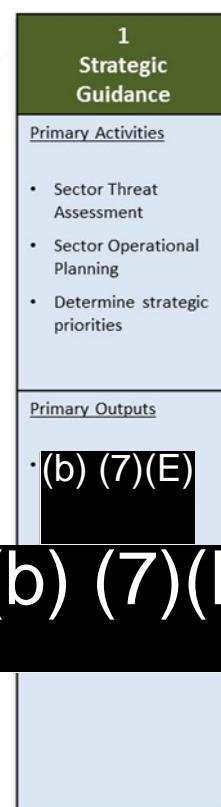- Intelligence estimates and briefs

Outputs:
- (Owned by the Sector) (b) (7)(E)
- (Owned by the Sector) Sector (b) (7)(E)
- (b) (7)(E)

Activities:

<u>Threat Assessment</u>. USBP interprets strategic guidance within the context of the three border areas to shape how USBP will achieve its mission.
- The USBP conducts station level threat assessments prior to performing operational planning.
- (b) (7)(E), the Sector reviews each Station's threat assessment and updates (b) (7)(E) for the Sector.   (b) (7)(E)
.
- (b) (7)(E)

1 Strategic Guidance

Primary Activities

- Sector Threat Assessment
- Sector Operational Planning
- Determine strategic priorities

Primary Outputs

- (b) (7)(E)

(b) (7)(E)

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8 (b) (7)(E) . USBP is working towards integrating and streamlining the process.

<u>Operational Planning</u>. The threat information from (b) (7)(E) and Sector threat assessments is used as input to operational planning within an individual Area of Responsibility (AoR). Typically, an AoR is within one of the twenty USBP Sectors; therefore, the Sector will be responsible for updating the (b) (7)(E) each year. ((b) (7)(E) The (b) describes the general Concept of Operations (CONOPS), including the application of resources by location and time, personnel assignments, special operations, and rules of engagement, that the Sector will utilize over the following year.

(b) (7)(E) . ORMD reviews the Strategic Alignment Table for Fiscal Year Planning Guidance. A risk-based assessment is done using the State of the Border for the fiscal year and (b) (7)(E) are reviewed to establish the current threat. All of the assessment details and supporting information are recorded in the ORMD workbooks. T(b) (7)(E)

During the Planning step, an investment priority list is developed by ORMD for solutions it wishes to pursue. The purpose of these lists are to support decision-making and enable prioritization of courses of action, locations and capabilities. Not all final decision will neatly align with priorities. This process intends to also leverage opportunities that may be outside of current priorities – such as low cost, high impact investments.

Prioritization Methodology:

Step 1: Review past year priorities utilizing Requirements Working Group

Step 2: Receive and Review Planning Guidance

Step 3: Identify current and emerging threats

Step 4: Review State of the Border and Risk Methodology for updated risk levels

Step 5: Draft priority lists, utilizing Requirements Working Group

Step 6: Brief, adjust and obtain concurrence for priority lists utilizing Requirements Working Group and executive governance

2.3.2   Step 2: Mission Analysis

Purpose: Assess the current capability in the AoR against the anticipated threats to ascertain gaps in the required mission capabilities and propose candidate solutions for mitigating the
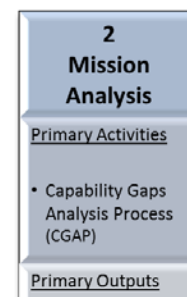
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[9](b) (7)(E) . USBP is working towards integrating and streamlining the process.

identified capability gaps.   This information will inform high-level decisions on operational assessments and assist CBP in making detailed, informed capability acquisition choices.

Inputs:

- Capability Framework (to provide mission context)
- ███████ (b) (7)(E) ███████
- ███████████ (b) (7)(E) ███████████
- Sector (b) (7)(E) ███████████
- USBP Priority AoR List

Outputs:

(b) (7)(E)

Activities:

CGAP. The prominent activity in the Mission Analysis step is the execution of the Capability Gaps Analysis Process across all BP stations. The CGAP is an agile process that can be tailored to any of the 124 Border Stations, and scaled in time and resources to obtain the quantity and quality of data desired. CGAP "events" have ranged from informal surveys of key agents at a Station using both telecon and internet interaction, to full three-day Collaborative Analysis Exercises (CAE) with significant in-person agent involvement.   The CAE event can be very detailed, depending on the Station's operational risk. The CAE can last from less than one day, to as many as three days.

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[10] Capabilities, Objective Measures, Resources, Evaluative Methods (CORE) from *Requirements Planning Team Training Guide: Strategic Requirements Planning Process & How to Draft a CORE Document*, Department of Homeland Security, March 2009

Station capabilities are evaluated against the threat and USBP goals (from the ^{(b) (7)(E)}█). At a minimum during the mission analysis phase, using AoR-relevant scenarios to provide operational context, evaluators rate the mission capabilities in terms of need, update the station capability baseline in terms of MET, and identify the capability gaps. The results are documented in the station CGAR, and individual CORE Cards are populated for each gap identified and recorded in the database.

For AoRs on the USBP priority AoR list, a deeper dive workshop, led by USBP ORMD staff, ranks mission capabilities, establishes the capability baseline, identifies capability gaps and elicits agent-recommended solutions for each scenario described.

For non-priority AoRs, the CGAP is a self-assessment of capability needs, capability baseline, gaps, and recommended solutions.

The Sector reviews capabilities, capability baselines and gaps for all of the stations in its AoR. The Sector leadership may also take this opportunity to generate Sector level CORE cards if desired. The individual Station information and any Sector CORE cards are forwarded to ORMD for final review and consolidation. Beginning in late 2016, this submission may be completed using the (b) (7)(E)

Upon receipt of Station and Sector information, ORMD staff analyzes the outputs and determines capability performance measures/success criteria. Capability gaps are summarized across the border.   All Station and Sector data from the mission analysis is maintained at ORMD as part of the CGAP Data Bookshelf, an electronic repository consisting of Word documents and Excel Workbooks.

2.3.3   Step 3: Planning

Purpose: Determine potential Courses of Action (COAs) that may resolve existing capability gaps and identify initial capability requirements (ICR) for acquisition funding considerations.

Inputs:
- Station Capability Gaps Analysis Reports (CGAR)
- Station and Sector (if provided) CORE Cards

Outputs:

- **(b) (7)(E)**
-
-

Activities:

The process of identifying courses of action and initial capability requirements is intensive and requires specific expertise in requirements analysis and engineering. (b) (7)(E)

Within each of the USBP priority AoRs, an ORMD-led Planning Workshop is conducted to examine capability gaps in detail to identify potential Courses of Action. The Planning Workshops vary depending on the needs of the Sector and the characteristics of the AoR. Individual station missions are discussed and evaluated (usually one per day) and the relevant capability gaps are discussed in the context of missions, (b) (7)(E) (b) (7)(E) COAs may be tiered by execution timeframe. Systems engineers provide support to elicit and capture initial capability requirements.

Upon the completion of the workshop, capability gaps are documented so that they can be fed into the next year's (b) (7)(E). Then an IRD is written to articulate the COAs and ICRs. Lastly, these COAs and requirements are entered by AoR into an USBP workbook and forwarded to ORMD. In the future, the intent is to update the (b) (7)(E) so that this submission can be electronic for all AoRs.

In non-priority AoRs, the same planning activities may be executed by the Station and Sector planning groups and the leadership. Capability gaps and CONOPs are updated for the next (b) (7)(E). COAs are developed and any ICRs are captured. Non-priority AoRs will only write IRDs if explicitly requested by ORMD to do so. The COA and ICR package is forwarded to ORMD for review.

The final activity is the prioritization of requirements across the three borders. This is done by ORMD using inputs from the AoRs on how the capabilities are weighted within the AoR. The requirements are prioritized based on three factors: (b) (7)(E) The prioritized ICRs are maintained in a workbook at ORMD. Currently, the prioritized requirements are assigned to capability categories. In FY16, a Portfolio structure based on the functional capabilities is being considered for implementation.

Once the Portfolio concept has been instituted within USBP, requirements will be assigned to the appropriate portfolios for capability development and monitoring.

The list of prioritized ICRs and recommended COAs are presented to the USBP Requirements Working Group (RWG) for review and approval. The RWG is an internal USBP body that approves and monitors USBP operational requirements and COAs. The RWG reviews the ICRs to ensure that they are correct and complete. COAs are mapped to the capability gaps and the gaps are tracked to closure through the IRD. Requirements are mapped to the different Tier 1, Tier 2, and Tier 3 Solutions. The RWG is also responsible for analyzing the recommended Tier 1 COAs in terms of cost, schedule, and performance in the next phase, Execution. Feedback, recommendations and issues are documented, actioned, and resolved by the RWG.

The RWG reports to an executive steering committee, soon to be institutionalized as the USBP Executive Governance Board (EGB). The RWG puts together a briefing package summarizing the gaps, COAs by Tier, and ICRs by capability category for the EGB to review and approve. Once the EGB approves the COA approach and associated requirements, the RWG:

- Develops an analysis plan to be executed by USBP for the Tier 1 COAs that establishes cost, schedule, and performance parameters for each of the candidate solutions.
- Creates a solution providers' (the programs of record) priority request package for Tier 2 COAs and initial capability requirements
- Collect information for R&D on any capabilities needed for Tier 3 COAs that may require additional activities such as technology development to mature capabilities before they can be submitted to the RAP.

Once the three packages outlined above are completed, the RWG will return to the EGB to give a summary presentation for final approval on the three data sets before Execution.

ORMD conducts an initial solutions assessment assigning candidate solutions to requirements and estimating the required quantities to mitigate the gaps identified for each candidate solution type. Candidate solution categories (b) (7)(E) [11] for priority requirements are assessed for how well it mitigates the gap, estimated cost of implementation, and risk/technical maturity. This risk-based assessment is executed using the DHS Risk Management Framework.[12] Example risk assessment waterfall charts for video optimization are provided in Figure 6 below.

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[11] (b) (7)(E)

[12] *Risk Management Fundamentals*, Homeland Security Risk Management Doctrine, April 2011
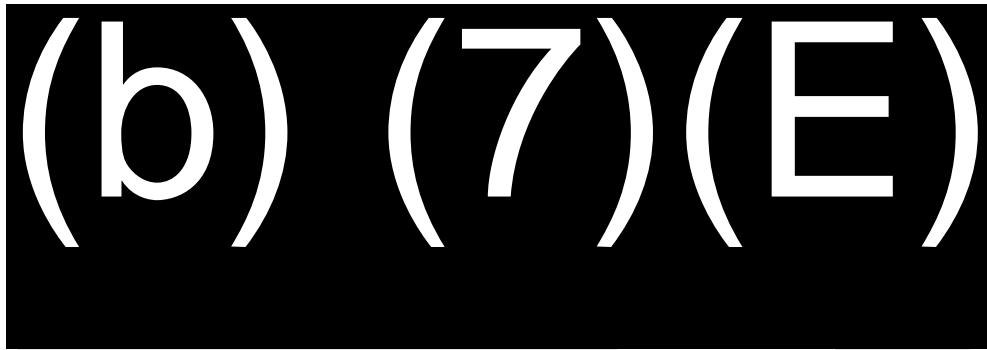
(b) (7)(E)

Figure 7: Example Risk Assessment for (b) (7)(E)

The candidate solution analysis is reviewed and based on that FY's priorities, ORMD recommends an investment plan for FY for USBP. The investment plan for the fiscal year (FY) is reviewed by Chief of BP. If approved by USBP it is forwarded for review and approval through CBP management. A (b) (7)(E) year technology roadmap is developed as input to the DHS Resource Allocation Plan (RAP) to plan against gaps not addressed in current FY investment strategy.

2.3.4   Step 4: Execution

Purpose: To pursue selected COAs and action operational requirements.

Inputs:
- Initial Requirements Document (IRD) that describes potential COAs and ICRs
- Prioritized USBP Capability Requirements Workbook with Requirements Mapped to COA Tiers
- Solution providers' requirement packages
- Package outlining needed R&D activities

Outputs:
- Initial Cost, Schedule, and Performance Analysis of Tier 1 COAs
- Tier 2 COA Requirements as inputs into the DHS RAP
- Tier 3 Requirements
- (b) (7)(E)

- Feedback on Operational Requirements and Assessments supporting Acquisition

Activities:

Unlike the three steps before where the USBP performed the vast majority of activities, Step 4 is only a subset within a broader set of processes. Moreover, understanding this broader set is necessary to understand the USBP activities.

The primary USBP activities within the Execution step: (a) Initial Cost, Schedule, and Performance Assessments for Tier 1 COAs; (b) Review of the (b) (7)(E) Analysis to support Acquisition; (c) Review of any AoA/AA for Acquisition; and (d) Review of any Operational Requirements and Assessments done in support of Acquisition.

> **4**
> **Execution**
>
> Primary Activities
>
> - Initial Cost, Schedule , & Performance (CSP) Assessments of Tier 1 COAs
> - Review DHS Resource Allocation Plan (RAP) Submissions
> - Review Acquisition's DOTMLPF Analysis and Analysis of Alternatives (AoA)/Alternatives Analysis (AA)
> - Review Operational Requirements and Assessments
>
> Primary Outputs
>
> (b) (7)(E)

- *Initial USBP Cost, Schedule, and Performance Assessment on Tier 1 COAs.* Courses of Action were identified in earlier steps for the initial capability requirements but without the benefit of a detailed analysis of alternative solutions. This analysis is now conducted with estimates of cost, schedule, performance, and risk for the Tier 1 COAs. Some initial capability requirements may have alternative solutions within one or more of the (b) (7)(E) domains. The analysis conducted in this step focuses on providing data to support a decision on the COA specifics. This analysis is conducted internally within USBP.

- *Review S&T Resource Allocation Plan (RAP) Submissions.* USBP prioritized capability requirements will be provided to the next higher echelon - DHS S&T, DHS JRC (JRIMS), and PPBA as appropriate. Each organization has a group, council, or board that is responsible for reviewing, consolidating, prioritizing, and recommending requirements to the next higher echelon. These groups, councils, and boards are currently being stood up and how they will interact with each other is still being defined.

  USBP works with multiple organizations to assist in mapping, and ultimately assigning initial capability requirements to existing and proposed programs within DHS and CBP. The products from this analysis are operational requirements, proposed Tier 2 and 3 COAs, and RAP proposals.[13]

- (b) (7)(E) . Each DHS operational component is responsible for identifying and prioritizing its capability requirements for

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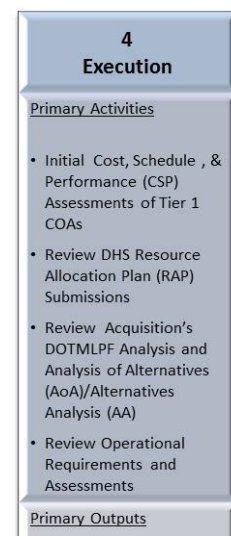
[13] In FY15, the requirements were submitted to the DHS S&T sub-IPT.

submission to the next higher echelon (in FY15 for USBP this was the DHS S&T sub-IPT). Once received, group members at this level evaluate each requirement for potential solutions. The requirement set is examined for available materiel and non-materiel solutions ((b) (7)(E) Assessment). Included in the (b) (7)(E) Assessment are the RAGS[14] (which are legislative and regulatory nonmaterial solutions), Interoperability/Partnerships and Infrastructure. This effort may be led by the component itself—in this case, USBP. If USBP does not lead the (b) (7)(E) assessment, ORMD will still review the analysis and provide feedback.   If available materiel, or non-materiel, solutions exist, USBP may decide to pursue an internal path to resolve the gap via a (b) (7)(E) solution.

AoAs and AAs are spearheaded by the Acquisition community and are not performed by ORMD. An Analysis of Alternatives (AoA) (or Alternatives Analysis (AA)) provides a systematic analytic and decision-making process to identify and document an optimal solution for an identified mission capability gap. The AoA/AA process supports Operational Requirements Document (ORD) development Concept of Operations (CONOPS) maturation and the Life Cycle Cost Estimate (LCCE) construction. An AoA/AA involves application of analyses that evaluate effectiveness, suitability, and financial justification for each viable alternative.[15] USBP does however, have an important role in AoAs/AAs which includes understanding requirements, assisting with translating requirements into solutions, suggesting and evaluating performance metrics, and providing feedback on the AoA/AA process and conclusions drawn.

As mentioned previously, in FY15 the capability requirements were submitted to the DHS S&T sub-IPT. Figure 5 is a basic flow chart of activities performed by members of the DHS S&T IPT and how they coordinate within the *RMP Execution* Step.

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[14] RAGS - Regulations, Authorities, Grants, and Standards

[15] DHS Acquisition Instruction/Guidebook #102-01-001: Appendix G, October 1, 2011
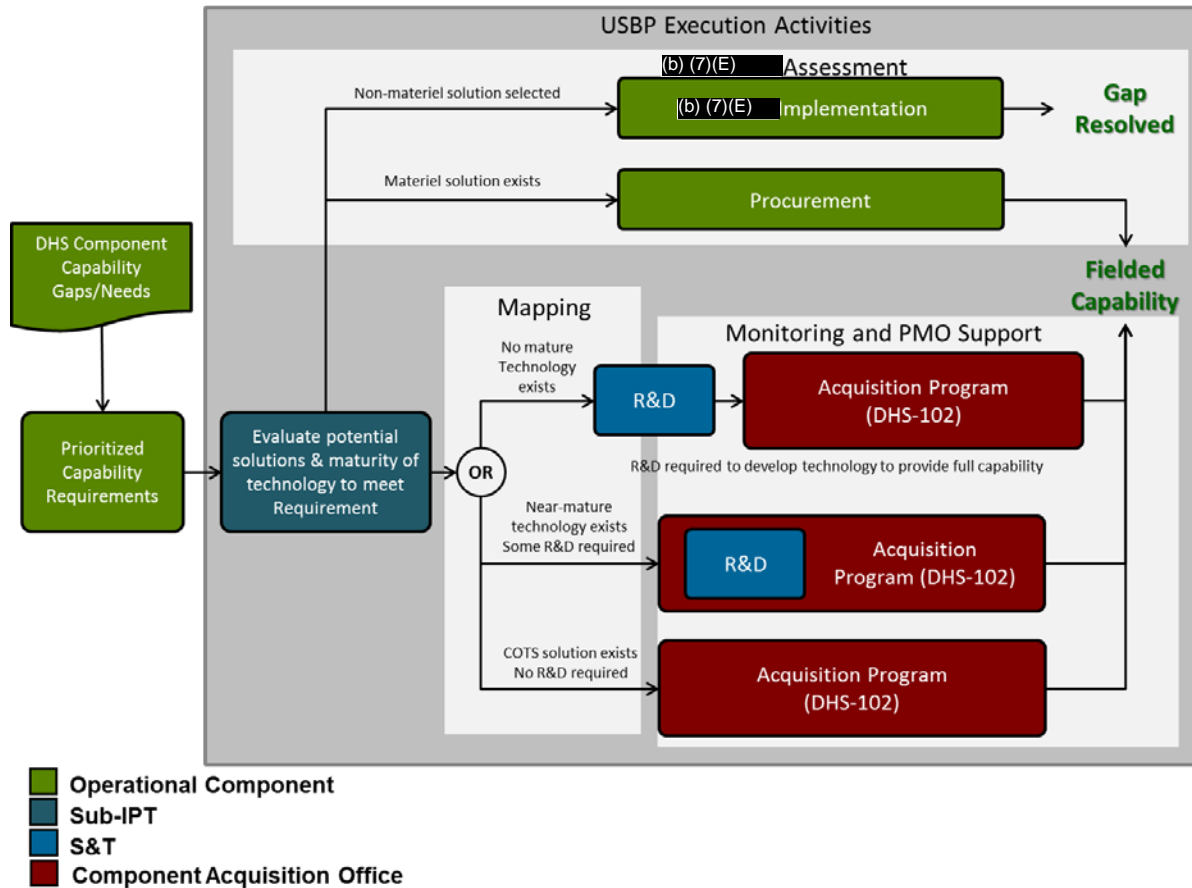
Figure 8: DHS S&T IPT Activity Flow Chart*

* Interaction with additional groups, councils, and boards are still being defined.

Of course, not all capability requirements are assigned to a project or program as funding constraints impact decisions. The requirements not addressed in this fiscal cycle are retained and revisited during the next cycle.

- *Feedback on Operational Requirements and Assessments Supporting Acquisition.* Once a COA has been approved and assigned to an execution organization, or a requirement has been assigned to a program, the USBP will monitor the status of the program via the program liaison agent and provide feedback on the operational requirements generated to support acquisition. This entails constant communication with program offices to gather the status of the solution development. Status of each program will be updated as necessary and communicated to the RWG.

Implementation of solutions to address capability gaps and operational requirements is a complex, lengthy, and time-consuming process. During implementation, USBP provides support to program offices in keeping abreast of progress and providing feedback on any operational assessments that are done. Gaps and requirements (both capability and operational requirements) are tracked to solutions as part of the process.

2.3.5   Step 5: Assessment

Purpose: Monitor and implement solutions; and assess their ability to resolve capability gaps.

Inputs:
- System Solutions (COAs) tied to operational requirements
- Implemented (b) (7)(E) Solutions
- USBP Capability Requirements Workbook

Outputs:
- System Assessment (Capabilities and Limitations) Documentation
- System Performance Reports

Activities:

Once a system has been deployed (either in prototype form, or as a production system), USBP is responsible for:

- Monitoring and providing feedback on Operational Testing (OT) and evaluation;
- Monitoring the solution implementation and fielding by integrating the system into the station's infrastructure, technology, people and information frameworks and verifying system performance.

USBP works with the stakeholders (e.g., S&T for technology prototype testing, OTIA for Operational Testing (OT) in planning, executing, and analyzing the systems performance. Operational lessons learned from the testing are fed back to program managers.

Once OT is complete, USBP works with Sector and Station leadership and personnel to successfully integrate the new system into the field—including personnel training, staffing, technical integration, installation, and data management. For selected investments, a Capability and Limitations (C&L) document may be drafted to document the system benefits and shortfalls of a technology. Part of the C&L assessment may include a workshop where operators are invited to discuss the capabilities and limitations of a system configuration and its associated performance.

Lastly, USBP continues to work with OTIA in verifying system performance once the system has been integrated into the Station infrastructure.
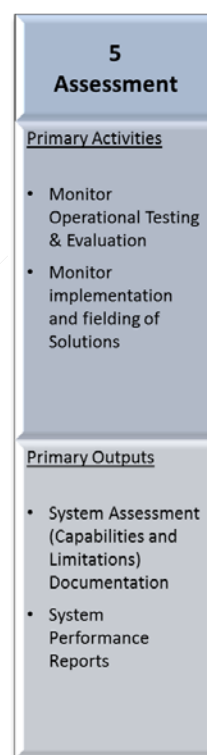
2.3.6   Step 6: Life Cycle Management

Purpose: Provide feedback in the form of mission impact statements and lessons learned regarding system solutions.

5
Assessment

Primary Activities

- Monitor Operational Testing & Evaluation
- Monitor implementation and fielding of Solutions

Primary Outputs

- System Assessment (Capabilities and Limitations) Documentation
- System Performance Reports

Inputs:
- Deployed System
- Capability baseline and gaps over time
- Performance metrics (e.g., MOEs, MOPs)
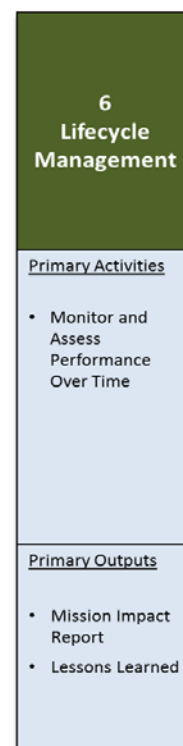- Operational data (e.g., asset assists, apprehensions, seizures*)*

Outputs:
- Mission Impact Report
- Lessons Learned Document

Activities:

USBP monitors capability baseline, gaps, and trends over time.

USBP will collect Station and Sector feedback on the operation of system solutions and lessons learned. Feedback from stations will be analyzed along with available data on apprehension and seizure and technological assists, in combination with other relevant performance metrics to determine the contribution of surveillance technologies. Feedback from multiple Stations will be combined and consolidated into reports for the RWG and OTIA. USBP works with the stakeholders to support additional assessments as required (e.g., DHS 102 - post implementation review)

6 Lifecycle Management

Primary Activities
- Monitor and Assess Performance Over Time

Primary Outputs
- Mission Impact Report
- Lessons Learned

APPENDIX A. REFERENCES

[1]   DHS Instruction Manual 102-01-00, Acquisition Management Instruction/Guidebook, Department of Homeland Security, Under Secretary for Management, October 1, 2011

[2]   Department of Homeland Security, Acquisition Instruction/Guidebook 102-01-001 Interim v 2.0, September 2010, Appendix B - Systems Engineering Life Cycle, Parts I & II.

[3]   USBP/OTIA Integrated Requirements Process, JHU/APL, September 2014.

[4]   CBP OTIA Requirements Handbook, Version 0.6, December 2010

[5]   Joint Publication 5-0, Joint Operational Planning, 11 August 2011

[6]   Federal Emergency Management Agency (FEMA)/Homeland Security Federal Strategic Plan Development(FPDP)

[7]   Manual for the Operation of the Joint Capabilities Integration and Development System (JCIDS), 12 February 2015.

[8]   DHS "Developing Operational Requirements- A guide to the cost-effective and efficient communications of needs", version 2.0, November 2008

[9]   Risk Management Fundamentals, Homeland Security Risk Management Doctrine, April 2011

[10]   DHS Guidebook, 102-01-003-01, Systems Engineering Life Cycle Guidebook, DHS, Office of Program Accountability and Risk Management, DRAFT

APPENDIX B. ABBREVIATIONS AND ACRONYMS

AA	Alternatives Analysis
AoA	Analysis of Alternatives
BPA	Border Patrol Agent
CAE	Collaborative Analysis Exercise
CBP	U.S. Customs and Border Protection
CGAP	Capability Gap Analysis Process
CONOP	Concept of Operation
DHS	Department of Homeland Security
DoD	Department of Defense

(b) (7)(E)

EGB	Executive Governance Board
FOC	Foundational Operational Capability
HQ	Headquarters
IPT	Integrated Process Team
JRC	Joint Requirements Council
JRIMS	Joint Requirements Integration and Management System
M&S	Modeling and Simulation
MET	Mission Essential Task

(b) (7)(E)

ORD	Operational Requirements Document
ORMB	Operational Requirements Management Branch
RMP	Operational Requirements Management Process
OTIA	Office of Technology Innovation and AcquisitionRWG Requirements Working Group
SRC	S&T Requirements Council
S&T	Science and Technology
TDDP	Technology Development and Demonstration Process

APPENDIX C. LEXICON

Term	Description
Attributes	A qualitatively or quantitatively measurable characteristic of a system, system element, or system function, that is traceable to a capability or requirement *[ORB Lexicon, OTIA TE Lexicon_V2_12Nov2014.]*
Baseline	A clearly defined starting point from where implementation begins, improvement is judged, or comparison is made. *(Business Dictionary 2012)*
Capabilities	The combination of people, processes and technology employed to achieve a stated goal at a desired objective. *(ORB Lexicon v1.00 28June2013)*
Conditions	Variables of the operational environment that affect task performance (e.g., (b) (7)(E) (b) (7)(E)) *("MEASURES, METRICS, AND SYSTEMS-OF-SYSTEMS, Bridging a Gap between Academic and DoD Systems Engineering Terminology", O. Thomas Holland, Naval Surface Warfare Center)*
Courses of Action (COAs)	Actions for existing systems or capabilities. Needed resource or equipment that can be provided immediately. Example – (b) (7)(E) . Fences, infrastructure, studies.
Domain	A problem space (e.g., operational environments - Land, Air. Maritime). *(IEEE 2010)*
Foundational Operational capability (FOC)	The essential combinations of capabilities (e.g., personnel, training, equipment, technology, and infrastructure) that provide the U.S. Border Patrol (USBP) with the fundamental operational means by which to conduct its METs successfully
Gaps	Amount by which a "need" exceeds resources *(System Analysis Guidebook, Version 1.0, September 28, 2012, Homeland Security Science and Technology)*
Initial Requirements Documents (IRD)	USBP IRD is tailor-able document generated by ORMD, that can be generated at any point in the process where deemed appropriate by ORMD. IRDs can be developed for focus areas and encompass multiple capability gaps or for specific capability gaps.
Initial Capability Requirements	A capability required to meet an organization's roles, functions, and missions in current or future operations. To the greatest extent possible, capability requirements are described in relation to tasks, standards, and conditions in accordance with the Universal Joint Task List or equivalent DOD Component Task List. *(Joint Capabilities Integration And Development System, CJCSI 3170.01H ,10 January 2012)*
Measures (metrics)	A qualitatively or quantitatively measurable characteristic of a system, system element, or system function, that is traceable to a capability or requirement. *(ORB Lexicon v1.00 28June2013)*. For example, for a (b) (7)(E)
Mission	Task, together with the purpose, that clearly indicates the action to be taken and the reason therefore Strategic goal (e.g., Secure America's Borders to prevent…) (JP-5)
Mission Essential Tasks (Functions)	A collective task in which an organization must be proficient to accomplish an appropriate portion of its wartime mission(s). (e.g., (b) (7)(E) *(Suggested Terms 4, USBP Lexicon_v1-02-18-2015)*
Objective (Desired Outcome)	The clearly defined, decisive, and attainable goal toward which every operation is directed (JP-5)
Operational Requirement (Success criteria)	A statement that identifies a necessary physical or functional attribute, capability, characteristic, or quality that a system must have in order for it to provide value or utility *(System Analysis Guidebook*, Version 1.0, September 28, 2012, Homeland Security Science and Technology)

Priorities	Requirements and AoRs having precedence in planning. AoR precedence is based on vulnerability and risk level.
Solution	Potential (b) (7)(E) approaches to solving, or at least mitigating, the capability gaps identified
System Requirements	A description of what the solution needs to do and the acceptance criteria. (*Defense Acquisition Acronyms and Terms*, Defense Acquisition University, December 2012)
Thresholds (criteria)	Minimum acceptable level of performance associated with a particular capability measure (*Defense Acquisition Guidebook)*

APPENDIX D. MISSION ESSENTIAL TASKS, FOUNDATIONAL OPERATIONAL CAPABILITIES FRAMEWORK, AND DHS S&T IPT STRUCTURE

The USBP capabilities framework lays out the required mission needs in terms of mission essential tasks (MET) or foundational operational capabilities (FOC) and assigns attributes and measures to the needs for generation of requirements, roadmaps, planning documents and budgets. Required capabilities are in terms of MET/FOCs and provide attributes/characteristics associated with that capability and include at least one measure (i.e., success criterion) for each capability attribute. The capability framework should be evaluated and updated following change to mission, new strategic plan development, or change in threat.

D.1 MISSION ESSENTIAL TASKS (METS) DEFINITIONS

The Mission Essential Tasks (METs) as defined are as follows:

METs
(b) (7)(E)

Reference:
[1] Suggested Terms 4 USBP Lexicon_v1_0218_2015
[2] ORB Lexicon v1.00 28June2013
[3] U.S. Department of Homeland Security, "Secure Border Initiative Integrated CONOPS and Requirements Specification," Version 2.1, Customs and Border Protection, July 2007.

D.2 FOUNDATIONAL OPERATIONAL CAPABILITIES (FOC) DEFINITIONS

The Foundational Operational Capabilities (FOCs) are the essential combinations of resources (personnel, training, equipment, technology, infrastructure, etc.) that provide the U.S. Border Patrol (USBP) with the fundamental operational means by which to conduct its METs successfully. The draft definitions for the FOCs are:

Foundational Operational Capabilities (FOC)

(b) (7)(E)

APPENDIX E. PROCESS SUMMARIES

Table E: Border Patrol Requirements Development Processes

Process Name	Lead Organization(s)	Products
Capability Gaps Analysis Process (CGAP)	• USBP / Strategic Planning & Analysis (SPA) Directorate / Operational Requirements Management Division (ORMD) • USBP Sectors and Stations	• Capability Gaps Analysis Report (CGAR) • CORE Cards
Operational Requirements Management Process (RMP)	• USBP Executive Governance Board (EGB) • USBP Requirements Working Group (RWG) • ORMD	• Sector Area of Responsibility Initial Requirements Document (IRD) • Prioritized set of operational requirements

DHS Science and Technology Integrated Process Teams—Border Security IPT	• Science and Technology (S&T)
	• Customs and Border Protection (CBP)
	• Immigration and Customs Enforcement (ICE)
	• US Coast Guard (USCG)
		• Resource Allocation Plan (RAP) Proposals
		• Requirements allocated to:
		  – S&T
		  – CBP/Office of Technology Innovation and Acquisition (OTIA)

Joint Requirements Integration and Management System (JRIMS)	• DHS Joint Requirements Council (JRC) • Deputy's Management Action Group (DMAG) • Portfolio Teams (PT)	• Validated DHS capability needs • Prioritized joint capabilities
Planning, Programming, Budgeting, and Accountability (PPBA)	• DHS Management Directorate • DHS National Protection & Programs Directorate • DHS Policy • DHS CBP	• Strategic Plans • Approved Resource Allocation Plan (RAP) • Budget Allocations and authorizations • Funds
Technology Development and Demonstration Process (TDDP)	• DHS S&T	• Demonstrated technology at Technology Readiness Level $\geq$ 7
DHS Instruction 102-01, Acquisition Management Directive (DHS-102)	• CBP/OTIA	• OTIA Acquisition Programs • Fielded systems

Requirements are actioned and funded through a top-down series of activities that comes from the PPBA framework. Funds are typically thought of as three "buckets" of money. The three types of money cannot be swapped, or interchanged.

- *Research and Development* (R&D) money funds the science, research and development of technology for implementation in a system. Only three organizations in DHS have R&D funding authority: the S&T Directorate, US Coast Guard, and the Domestic Nuclear Detection Office (DNDO). The vast majority of Border Patrol technology development is conducted by S&T.
- *Acquisition* money funds the acquisition programs that produce deployable systems. The vast majority of Border Patrol systems are acquired by the Office of Technology Innovation and Acquisition (OTIA) within CBP.
- *Operations* money funds the day-to-day operations of the USBP. This money can be used to buy supplies and certain types of equipment; however, the government places serious restrictions on spending this type of money.

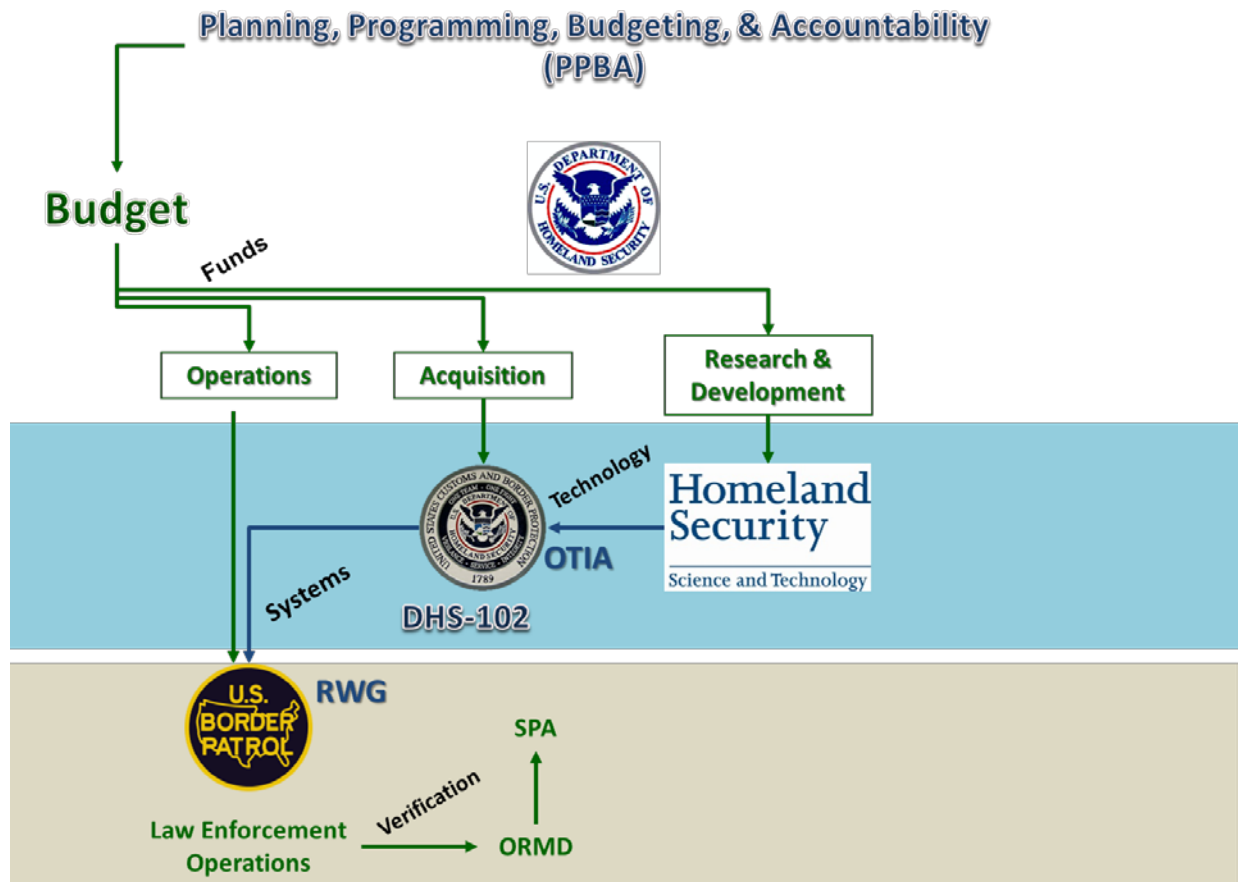Figure 2 depicts the flow of funds, technology, and systems to the USBP. All acronyms in the figure are defined in table 1 below.

Figure 2: Requirements Implementation